Geological Technics Inc.

Work Plan

Well Abandonment

Ham's Station
34950 Hwy. 88
Pioneer, Amador County CA

Project No. 808.2
December 15, 2005

Prepared for:
Mr. Thomas A. Newcomer
Ham's Station
34950 Hwy. 88
Pioneer, CA 95666

Prepared by:
Geological Technics Inc.
1101 7th Street
Modesto, California 95354
(209) 522-4119

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December 15, 2005

Project No. 808.2
Project Name: Ham's Station

Mr. Thomas A. Newcomer
Ham's Station
34950 Hwy. 88
Pioneer, California 95666

RE: Report: Well Abandonment
Location: Ham's Station, 34950 Hwy. 88, Pioneer, Amador County, CA

Dear Mr. Newcomer:

Geological Technics Inc. is pleased to present the attached Work Plan for Well Abandonment at 34950 Hwy. 88, Pioneer, Amador County, CA.

This plan calls for the abandonment of five (5) intermediate to deep groundwater monitoring wells.

If you have any questions or need additional information, please contact me. Thank you for this opportunity to serve your environmental needs.

Sincerely,

Raynold Kablanow II

Digitally signed by Raynold Kablanow II
DN: CN = Raynold Kablanow II, C = US, O = Geological Technics, Inc.
Date: 2005.12.19 14:40:12 -08'00'

Raynold I. Kablanow II, Ph.D.
Vice President

cc: Kirk T. Larson – CRWQCB
Bob Fourt – Amador County Environmental Health Department

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Geological Technics Inc.

1101 7th Street
Modesto, California 95354
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1.0 INTRODUCTION

Hams Station (HS) is a restaurant and bar located at 5,433 feet in the Sierra Nevada Mountains, on the south side of Highway 88 in Amador County, which also included a fueling station until January 1999.

In January 1999, five underground storage tanks (USTs) were removed from the Hams Station (HS) property. Soil and groundwater samples collected around the tank showed that gasoline hydrocarbons were present in the soil and groundwater.

In October of 1999, 244.4 tons of soil was excavated from the former tank pit. The soil was removed, under manifest, from the site in November of 1999. In October through December of 1999, Geological Technics Inc. (GTI) performed a soil gas survey at the site. Both the soil removal and soil gas survey are discussed in the *Source Removal, Receptor Survey and Soil Gas Survey Report* – January 31, 2000.

In the *Site Characterization – Monitoring Well Installation Report* – December 12, 2000, GTI recommended the site for closure. Mr. Kirk Larson of the Regional Water Quality Control Board Central Valley Region (RWQCB) responded by directing the initiation of a quarterly groundwater monitoring/sampling schedule (January 8, 2001 letter).

GTI prepared and submitted a *Risk Evaluation & Appendix B Site Closure Checklist* on May 30, 2002. Mr. Larson responded in a letter dated September 19, 2002, stating that the RWQCB was "…unable to concur with closure at this time because the extent of soil contamination has not been adequately defined".

On December 30, 2002, GTI prepared and submitted the work plan: *Additional Soil and Groundwater Investigation*. Mr. Larson approved the work plan in a letter dated January 30, 2003.

A soil boring, six (6) hand auger borings and four (4) monitoring wells were installed during October 2003 in accordance with the December 2003 work plan. The results of the additional site investigation activities are discussed in the *Additional Site Characterization Report* dated January 16, 2004. The additional monitoring wells have been included in the routine quarterly groundwater monitoring events since their installation.

On February 7, 2005, GTI submitted the *Site Characterization, Risk Evaluation & Appendix B Site Closure Checklist Report*. In a letter dated July 22, 2005, Mr. Larson requested a work plan to define the nature and extent of a soil vapor anomaly detected at the site. GTI submitted the work plan for additional soil investigation near the vapor anomaly on August 5, 2005.

On November 8, 2005, GTI submitted the *Additional Soil Investigation Report* documenting the work performed near the soil anomaly. In an email dated December 15, 2005, Mr. Larson requested a work plan to abandon the wells in anticipation of an upcoming "No Further Action" letter. The following work plan addresses the decommissioning of the HS monitoring wells.

2.0 WELL ABANDONMENT

There are five (5) monitoring wells associated with the HS site. GTI proposes properly decommissioning these wells in an effort to meet requirements leading to a "No Further Action Letter". All monitoring wells associated with the site have been monitored regularly and are in good condition. No obstacles have been observed in any well. A summary of well construction is included as Table 1 and well locations are denoted in Figure 2.

A competent C-57 well driller (selected through bidding process after work plan approval) will be employed to decommission the monitoring wells. Permits will be secured as necessary and the local regulatory agency will be notified 48 hours prior to commencing work.

The five monitoring wells will be filled with grout via a tremie pipe followed by pressurizing the grout filled well. Approximately 35 psi of pressure will be applied to the well for up to five minutes. The pressure cap will be removed and the process will be repeated if there is more than three feet of headspace above the grout slurry.

The upper three to five feet of the borehole will be drilled out using 8-inch hollow stem augers guided down the center of the well casing via a guide rod attachment on the drill bit. The upper three to five feet will be backfilled with clean material. The surface will be

capped with the appropriate material (i.e. soil, concrete or asphalt) to match the surrounding surface conditions.

Displaced water will be captured and placed into properly labeled DOT approved containers. The containers will be temporarily stored on-site until disposal can be arranged.

Approximately 13.1 cubic feet, or 98.3 gallons, of grout will be required for the decommissioning of the five wells associated with HS site. The calculations used to estimate the volume of grout are attached as Table 2.

3.0 SCHEDULE & REPORTING

Geological Technics Inc. anticipates beginning fieldwork no later than 30 days after work plan approval and issuance of the applicable permits. The information gathered during this phase of work will be presented in a report in an effort to meet the requirements of obtaining a “No Further Action Letter”. Dr. Ray Kablanow, a registered professional geologist, will supervise the project. Copies of the report will be forwarded to both the appropriate County and State regulatory agencies (Amador County Environmental Health Department and CRWQCB).

4.0 SIGNATURE & CERTIFICATION

Geological Technics Inc. will perform this project in accordance with accepted geologic and hydrologic standards of the State of California accepted and in effect at the time of this investigation. Geological Technics Inc. is not responsible for undisclosed conditions.

This work plan was prepared by:

Eric L. Price

Digitally signed by Eric L. Price
DN: CN = Eric L. Price, C = US, O = Geological Technics, Inc.
Reason: I am the author of this document
Date: 2005.12.19 14:40:43 -08'00'

Eric L. Price
Project Geologist

Raynold Kablanow II

Digitally signed by Raynold Kablanow II
DN: CN = Raynold Kablanow II, C = US, O = Geological Technics, Inc.
Reason: I am approving this document
Date: 2005.12.19 14:41:00 -08'00'

Raynold Kablanow II, Ph.D.
California Professional Geologist #5234
Certified Hydrogeologist #442

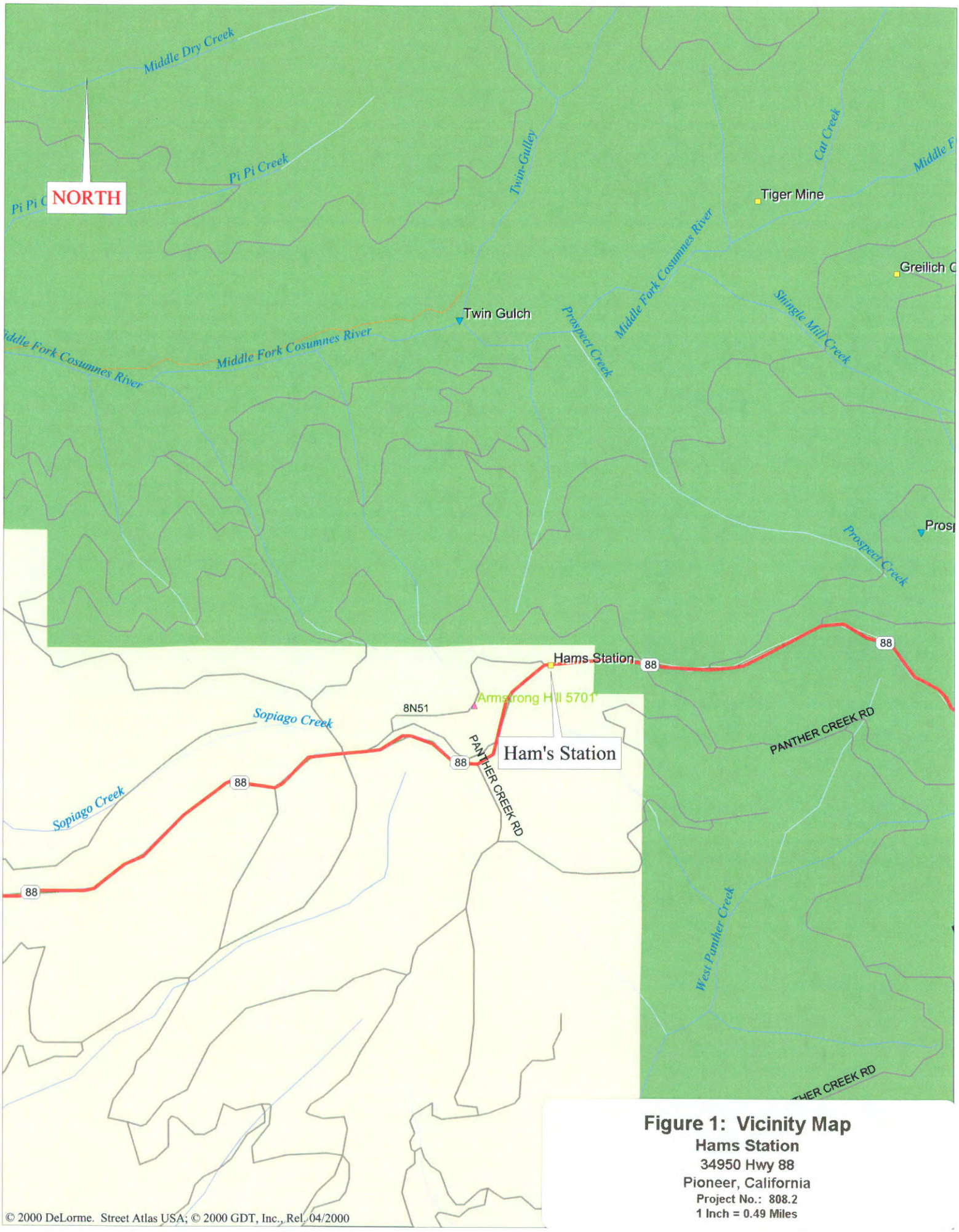

Figure 1: Vicinity Map

Hams Station
34950 Hwy 88
Pioneer, California
Project No.: 808.2
1 Inch = 0.49 Miles

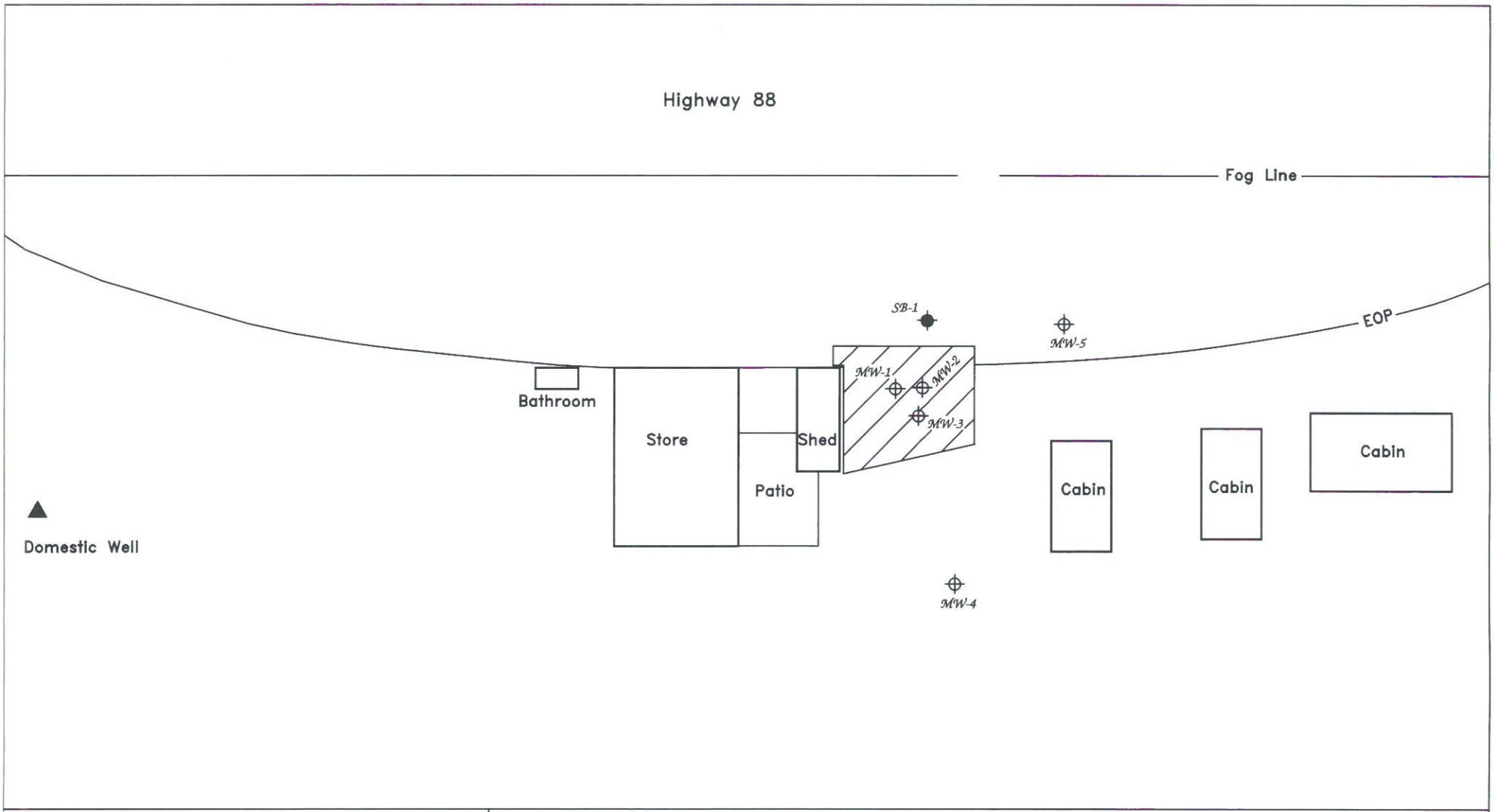

Figure 2:

Site Map

Ham Station

34950 Hwy 88

Pioneer, CA

Project No. 808.2

Geological Technics Inc. *12/15/05*

LEGEND

- SB-1 — Soil Boring Location
- MW-2 — Monitoring Well
- ▲ — Domestic Well
- Pit Excavation
- Structures and Dwellings

N

0 50'

SCALE

Table 1: Summary of Well Construction

Ham Station
34950 Hwy 88
Pioneer, Amador, CA
Project No. 808.2

Well/Boring Type	Well/Boring Number	Status	Date Completed	Total Depth (ft)	Boring Diameter (in)	Well Casing Diameter (in)	Casing Type	Slot Size (in)	Sand Type	Well Screen		Filter Pack		Annular Seal		Grout Seal	
										From	To	From	To	From	To	From	To
Monitoring	MW-1	ACT	10/05/00	168.6	6	2	PVC	0.010	#3	169	149	171.5	146.5	146.5	144.5	144.5	S
Monitoring	MW-2	ACT	10/18/03	68.5	6.625	2	PVC	0.020	#3	67	57	68.5	52	52	47	47	S
Monitoring	MW-3	ACT	10/18/03	38.33	6.625	2	PVC	0.020	#3	38	28	38	28	25	22	22	S
Monitoring	MW-4	ACT	10/18/03	92	6.625	2	PVC	0.020	#3	65	55	70	52	52	47	47	S
Monitoring	MW-5	ACT	10/21/03	67	6.625	2	PVC	0.020	#3	67	57	67	54	54	49	49	S

Table 2: Well Abandonment Spreadsheet

Ham's Station
34950 Hwy 88
Pioneer, California

Well ID	Borehole diameter	Borehole diameter	Casing diameter	Casing diameter	Total Depth	Per foot casing vloume	Casing volume	Screen Int.	Filter pack volume	Grout-Total estimated	Grout-Volume estimated
	in.	ft	in.	ft	ft	ft^3/ft	ft^3	ft	ft^3	ft^3	gal
MW-1	6	0.500	2	0.167	168.6	0.0218	3.68	20	1.05	4.7	35.3
MW-2	6.625	0.552	2	0.167	68.5	0.0218	1.49	10	0.65	2.1	16.1
MW-3	6.625	0.552	2	0.167	38.4	0.0218	0.84	10	0.65	1.5	11.1
MW-4	6.625	0.552	2	0.167	92.0	0.0218	2.01	10	0.65	2.7	19.9
MW-5	6.625	0.552	2	0.167	67.0	0.0218	1.46	10	0.65	2.1	15.8
								Estimated Total =		**13.1**	**98.3**